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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Di Benedetto et al.

Attorney Docket No.: ANDIP006/9007

Application No.: 10/026,311

Examiner: Bilgrami, A.

Filed: December 21, 2001

Group: 2143

Title: METHODS AND APPARATUS FOR IMPLEMENTING A HIGH AVAILABILITY FIBRE CHANNEL SWITCH

CERTIFICATE OF FACSIMILE TRANSMISSION
I hereby certify that this correspondence is being transmitted by facsimile to fax number 571-273-8300 to the U.S. Patent and Trademark Office on November 16, 2006.

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Agnes Spence

PRE-APPEAL REQUEST FOR REVIEW

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Commissioner for Patents
P. O. Box 1450
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Applicant requests review of the final rejection in the above-identified application, no. 10/026,311.

This request is being filed with a Notice of Appeal.

The review is requested for the reasons stated below.

I am the attorney or agent acting under 37 CFR 1.34

Claims 1-37 are pending. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chong (U.S. 6,070,251) in view of Lubbers (U.S. 6,931,487).

Claims 1 and 27 recite "a message that was sent from a first application running on an active supervisor." "High availability characteristics associated with the message" are determined, "wherein high availability characteristics provide information for synchronizing a second application running on a standby supervisor in the fibre channel switch with the first application." The message is provided "to the second application running on the standby supervisor when high availability characteristics indicate that the message should be mirrored."

Neither Chong nor Lubbers alone or in combination teach or suggest all of these elements. Neither Chong nor Lubbers alone or in combination teach or suggest "determining

high availability characteristics of a message" or sending a message to a standby supervisor "when high availability characteristics indicate that the message should be mirrored."

The cited reference Chong describes a conventional failover system having a primary controller and a secondary controller. Since both controllers have the same address, data is received by both controllers by a host. See Col. 3, Lines 29-30 & Lines 45-48. However, Chong does not appear to teach mirroring a message sent from a first application on an active supervisor to a second application of a standby supervisor "when high availability characteristics indicate that the message should be mirrored" and the Examiner acknowledges that Chong does not explicitly disclose determining high availability characteristics associated with a message. The Examiner cites Col. 2, Lines 56 through Col. 3, Line 67 for teaching synchronization of data between the primary and secondary controllers so that the secondary controller can take over if the primary controller fails. It is respectfully submitted that these cited passages appear to teach that synchronization of data is accomplished for all data being received by both controllers. Synchronization is also discussed in relation to another context, besides mirroring data, in that Chong also appears to describe synchronization between both controllers to prevent data overruns between the PSOC of the controllers. When each PSOC of each controller has available memory space, it notifies the other PSOC of the other controller. Supra Lines 50-67. This synchronization appears to not deal with mirroring of data sent by an application of the primary controller, but rather, merely notification of available memory by each controller to the other controller.

Chong does not appear to teach determining high availability characteristics associated with a message sent from a first application and then basing a mirroring operation on whether or not these characteristics indicate that the message should be mirrored, in the manner claimed. In sum, these cited passages appear to not teach mirroring a message sent from a first application on an active supervisor to a second application of a standby supervisor when high availability characteristics indicate that the message should be mirrored. In fact, Chong does not even teach or suggest determining high availability characteristics. In contrast, Chong teaches that all data is received by the primary and secondary controllers, rather than mirroring data based on whether or not high availability characteristics associated with a message indicate mirroring. In light of the forgoing, it is submitted that claims 1 and 27 are patentable over Chong.

Lubbers similarly does not teach or suggest "determining high availability characteristics associated with a message" and does not teach or suggest mirroring when "when high availability characteristics indicate that the message should be mirrored" and in fact does not

even relate to an active supervisor and a standby supervisor. Lubbers describes "a storage architecture that provides virtualized data storage." Col. 5, Lines 7-8. "Some LUNS 102 may represent striped, mirrored and/or parity-protected storage. Other LUNs 102 may represent storage capacity that is configured without striping, redundancy, or parity protection." Col. 6, Lines 44-47. However, having some LUNs that are mirrored and other LUNs that are not mirrored is not "determining high availability characteristics associated with a message." All data included in a LUN is either mirrored or not. There is no mechanism for determining high availability characteristics associated with a message or mirroring when high availability characteristics indicate that the message should be mirrored. No description of any message is provided. Consequently, it is believed that a conventional message is used, and a conventional message does not have associated high availability characteristics. Transmission of a conventional message is also not based upon high availability characteristics.

Furthermore, Lubbers is not even talking about mirroring messages between an active supervisor and a standby supervisor so it is believed inappropriate to combine the references. Lubbers is merely describing data being written by an active supervisor to a first disk and data written by the same active supervisor to a second disk. Lubbers does not teach or suggest any messages between an active supervisor and a standby supervisor.

Consequently, Lubbers does not relate to messages between an active supervisor and a standby supervisor so it is inappropriate to combine the references. Furthermore, even if appropriately combined, neither Chong nor Lubbers either alone or in combination teach or suggest "determining high availability characteristics associated with a message." Furthermore, neither Chong nor Lubbers either alone or in combination teach or suggest

Claim 13 is directed towards a "fibre channel switch" that includes "a fibre channel line card coupled to an external fibre channel network entity." Claim 13 also requires the fibre channel switch to include "a first supervisor coupled to the fibre channel line card through a backplane" and "a second supervisor coupled to the first supervisor." Claim 13 further requires that "wherein the first supervisor is configured to identify a message from the external fibre channel network entity that alters the state of the first supervisor and send an acknowledgement to the external fibre channel network entity before the message is passed to the second supervisor." This approach allows efficient handling of messages by the active supervisor, while maintaining synchronization with the standby supervisor with respect to such message.

The cited references also fail to teach or suggest "a fibre channel line card coupled to an external fibre channel network entity" and a "first supervisor [that] is configured to identify a

message from the external fibre channel network entity that alters the state of the first supervisor and send an acknowledgement to the external fibre channel network entity before the message is passed to the second supervisor" as recited in claim 13. The Examiner has failed to cite portions of the Chong references that teach the limitations of claim 13. It is respectfully submitted that the cited references fail to teach or suggest such limitations.

The Examiner's rejections of the dependent claims are also respectfully traversed. However, to expedite prosecution, all of these claims will not be argued separately. Claims 2-12, 14-26, and 28-37 each depend directly or indirectly from independent claims 1, 13, or 27 and, therefore, are respectfully submitted to be patentable over cited art for at least the reasons set forth above with respect to claims 1, 13, or 27. Further, the dependent claims require additional elements that when considered in context of the claimed inventions further patentably distinguish the invention from the cited art. For example, new claim 36 recites that "the message is received into the fibre channel switch by the first application and sent by the first application out of the fibre channel switch." Claim 37 requires that "the message is sent by the first application to another application." The cited references also fail to teach or suggest such limitations.

Respectfully submitted,
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EXAMPLE CLAIM

1. (Previously Amended) A method for implementing high availability in a fibre channel switch in a storage area network, the method comprising:

identifying a message that was sent from a first application running on an active supervisor in a fibre channel switch;

determining high availability characteristics associated with the message, wherein high availability characteristics provide information for synchronizing a second application running on a standby supervisor in the fibre channel switch with the first application;

providing the message to the second application running on the standby supervisor when high availability characteristics indicate that the message should be mirrored; and

not providing the message to the second application running on the standby supervisor when high availability characteristics do not indicate that the message should be mirrored.